

CLAIMS

1. An isolated digital controlling device for controlling adjustable module, said isolated device comprising:
 - 5 at least one user analog input line for receiving user input signal for adjusting a working parameter of the adjustable module;
 - at least one analog to digital converter receiving said user analog input signal and converting said user analog input signal to digital input information;
 - 10 at least one discrete-value isolator receiving said digital input information from said analog to digital converter and transmitting an isolated digital information;
 - a micro-controller adapted to receive said isolated digital information from said discrete-value isolator and produce isolated processed digital input information in response to said isolated digital input information;
 - 15 at least one digital to analog converter unit receiving said isolated processed digital input information and producing analog input signal for controlling at least one adjustable module.
- 20 2. An isolated digital controlling device according to claim 1, further comprising:
 - at least one analog to digital converter receiving analog monitoring output signal from adjustable module and converting said
 - 25 analog monitoring output signal to digital output information and transmitting said digital output information to said micro-controller.
3. An isolated digital controlling device according to claim 2, further comprising:
 - 30 at least one discrete-value isolator receiving processed digital output information from said micro-controller and transmitting isolated processed digital output data to a digital to analog converter;

at least one digital to analog converter receiving said isolated processed digital output data and producing at least one user analog monitoring output signal.

5 4. An isolated digital controlling device according to claim 3 wherein the discrete-value isolator is a bi-directional isolator.

5. The isolated digital controlling device according to claim 2 wherein the accuracy of user analog monitoring output signal is better then 0.5%.

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6. An isolated digital controlling device according to claim 1 wherein the discrete-value isolator comprises at least one opto-coupler.

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7. An isolated digital controlling device according to claim 1, further comprising:

at least one digital input device transmitting at least one user command to said micro-controller.

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8. An isolated digital controlling device according to claim 7, wherein program executed by said micro-controller could be modified in response to at least one user command received from digital input device.

9. An isolated digital controlling device according to claim 1, further comprising:

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at least one communication interface transmitting digital information to said micro-controller and receiving digital information from said micro-controller.

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10. An isolated digital controlling device according to claim 9, wherein program executed by said micro-controller could be modified in response to digital information received from said communication interface.

11. The isolated digital controlling device according to claim 1 wherein the accuracy of user analog input signal is better than 0.5%.
12. An isolated digital controlling device for controlling adjustable module comprising:
- at least one user analog input line for receiving user input signal for adjusting a working parameter of adjustable module;
 - at least one analog to digital converter receiving said user analog input signal and converting said user signal to digital input information;
 - a micro-controller adapted to receive information from said analog to digital converter and produce processed digital input information in response to said digital input information;
 - at least one discrete-value isolator receiving said processed digital input information from said micro-controller and transmitting said isolated information to at least one digital to analog converter;
 - at least one digital to analog converter unit receiving said isolated processed digital input information and producing analog signal for controlling adjustable module.
13. An isolated digital controlling device according to claim 12, further comprising:
- at least another analog to digital converter receiving analog monitoring output signal from adjustable module and converting said analog monitoring output signal to digital output information and transmitting said digital output information to at least one discrete-value isolator;
 - at least one discrete-value isolator receiving digital output information from said digital to analog converter and transmitting isolated digital output data to said micro-controller;
14. The isolated digital controlling device according to claim 13, wherein the accuracy of user analog monitoring output signal is better than 0.5%.

15. An isolated digital controlling device according to claim 13, further comprising:

at least one digital to analog converter receiving processed digital output data from said micro-controller and producing at least one user analog monitoring output signal.

16. The isolated digital controlling device according to claim 12, wherein the accuracy of user analog input signal is better than 0.5%.

17. An isolated adjustable power system with analog user input line electrically isolated from adjustable power module circuit, said isolated power system comprising:

at least one user analog input line for receiving user input signal for adjusting working parameter of adjustable power module;

at least one analog to digital converter receiving user analog input signal and converting said user signal to digital input information;

at least one discrete-value isolator receiving said digital input information from said analog to digital converter and transmitting said isolated information to un-isolated power module side;

at least one digital to analog converter receiving isolated digital information from said isolator and producing analog input signal;

at least one adjustable power module capable of adjusting at least one working parameter in response to said analog input.

18. The isolated adjustable power system according to claim 17, further comprising:

an analog monitoring output signal indicating the status of said adjustable module;

at least another analog to digital converter receiving analog output signal from said adjustable module and converting said analog monitoring signal to digital output information;

at least one discrete-value isolator receiving said digital output information from said analog to digital converter and transmitting said digital information to isolated user side;

5 at least another digital to analog converter receiving digital information from isolator and producing user analog monitoring output signal.

19. The isolated adjustable power system according to claim '18, wherein discrete-value isolator is a bi-directional isolator.

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20. The isolated adjustable power system according to claim 17 wherein the accuracy of user analog input signal is better then 0.5%.